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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-------------------------------|-------------|----------------------|---------------------|------------------|
| 10/524,501 | 09/29/2005 | Victor Gostynski | P-7702-US | 6180 |
| 49443 | 7590 | 12/11/2007 | EXAMINER | |
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| | | | ART UNIT | PAPER NUMBER |
| | | | 2183 | |
| | | | MAIL DATE | DELIVERY MODE |
| | | | 12/11/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/524,501

Applicant(s)

GOSTYNSKI ET AL.

Examiner

Eric Coleman

Art Unit

2183

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5 and 7 is/are rejected.
- 7) ☒ Claim(s) 2,6 and 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 contains the language "generating by the register an output command signal" (in lines 9-10). A register conventionally functions to store or output data. It is unclear whether the generation of the signal involves combining data or operating on data or generating the data involves data merely being output by the register.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,3,5, are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (patent No. 6,934,937) in view of Schmidt (patent No. 5,862,366).

Johnson taught the invention substantially as claimed including a data processing ("DP") system comprising: (as per claims 1,5):

a method and system for synchronous debugging of a parallel processing platform, the platform comprising of a plurality of processors executing code, the code including one or more breakpoints to allow debugging of the code(e.g., see figs. 1, 2, col. 4, lines 17-24, col. 6, lines 33-55 and col. 12, lines 31-51), the method and system comprising:

electrical circuitry for upon a processor reaching a breakpoint, propagating an interrupt command to all of the processors in the platform; thereby halting system execution synchronously to enable examination of the states of the processors (e.g., see col. 13,lines 3-23).

Johnson did not expressly detail (claim 1, 5) the propagating an interrupt command was to a standard interrupt pin of all the processors in the platform. Schmidt however taught a single interrupt pin for routing interrupts of multiple I/O devices to selected interrupt channels (e.g., see col. 4, lines 52-61, col. 9, lines 31-40 and col. 7, lines 13-29 and figs. 9,12 and col. 18, line 52-col. 19,line 29).

It would have been obvious to one of ordinary skill in the DP art to combine the teachings of Johnson and Schmidt. Both references were directed toward processing interrupts in a system with plural processors. Johnson taught debugging a system and using breakpoint instructions to initiate interrupts. Schmidt taught the efficient propagating of interrupts to system of a different processors in the system. Therefore one of ordinary skill in the DP art would have been motivated to incorporate the Schmidt

teachings of propagating the interrupts via a interrupt pin at least for enable selected synchronous propagation of the interrupt to processors (e.g., see col. 18, line 52-col. 19, line 29 of Schmidt).

As per claim 3, Johnson taught the propagating of the halt command to all of the processors in the platform comprises the processor that reaches the breakpoint generating an interrupt output signal to a hardware I/O device(e.g., see col. 10, lines 51-col. 11, line 11). Schmidt taught the hardware I/O device propagating the interrupt output signal to all processors in the platform (e.g., see fig. 16 and col. 9, lines 12-40 and col. 15, lines 7-67 and col. 5, line 63-col. 6, line 24).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson and Schmidt as applied to claims 5 above, and further in view of Bacigalupo (patent No. 6,167,478).

As per claim 7, Bacigalupo taught wherein the electrical circuitry for propagation comprises: each processor being connected to a hardware I/O device; each hardware I/O device including an output signal pin; each output signal pin connected via OR gate drives to interrupt pins on each every processor in the system (e.g., see fig. 1 and col. 2, lines 26-67).

It would have been obvious to one of ordinary skill in the DP art to combine the teachings of Johnson and Bacigalupo. Johnson is directed to the problems of production and propagation of breakpoint interrupt to distributed system elements including processors. Therefore one of ordinary skill would have been motivated to incorporate the Bacigalupo teachings of using or gates to arbitrate interrupts at least to

provide efficient determination of the interrupt to be serviced in the Johnson system that provides plural interrupts (e.g., see fig. 2 of Johnson).

Allowable Subject Matter

Claims 2, 6 and 8 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Swoboda (patent No. 6,564,339) disclosed a system with emulation suspension mode handling multiple stops and starts (e.g., see abstract).

Wach (patent No. 5,530,875) disclosed a grouping of interrupt sources for efficiency on the fly (e.g., abstract).

Glasco (patent No. 7,039,740) disclosed an interrupt handling in systems having multiple multi-processor clusters (e.g., see abstract).

Bailey (patent No. 5,951,669) disclosed a system for serialized interrupt transmission (e.g., see abstract).

Rankin (patent No. 6,813,665) disclosed interrupt system with grouped processors (e.g., see fig. 1 and abstract).

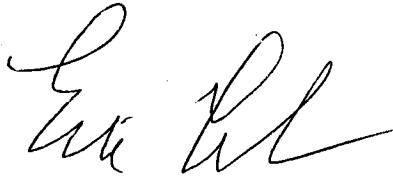
Dervin (patent No. 6,952,766) disclosed a automated node restart clustered computer system (e.g., see abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Coleman whose telephone number is (571) 272-4163. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EC



ERIC COLEMAN
PRIMARY EXAMINER